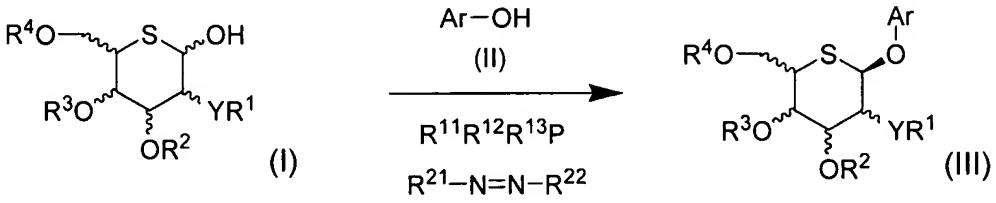
## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

## LISTING OF CLAIMS:

**1. (original):** A method for preparing an aryl 5-thio-β-D-aldohexopyranoside derivative of Formula (III), which comprises reacting a 5-thio-D-aldohexopyranose derivative of Formula (I) with Ar-OH of Formula (II) in the presence of a phosphine represented by $PR^{11}R^{12}R^{13}$ and an azo reagent represented by $R^{21}$-N=N-$R^{22}$ in accordance with the following scheme:




wherein

in the above Formulae (I) and (III),

the wavy lines mean containing any stereoisomer selected from D-form, L-form and a mixture thereof,

Y represents -O- or -NH-, and

$R^1$, $R^2$, $R^3$ and $R^4$, which may be the same or different, each represent a hydrogen atom, a $C_{2-10}$ acyl group, a $C_{1-6}$ alkyl group, a $C_{7-10}$ aralkyl group, a $C_{1-6}$ alkoxy-$C_{7-10}$ aralkyl group, an

allyl group, a tri($C_{1-6}$ alkyl)silyl group, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkyl group or a $C_{2-6}$ alkoxycarbonyl group, or

when Y represents -O-, $R^1$ and $R^2$, $R^2$ and $R^3$, or $R^3$ and $R^4$ may together form -$C(R^A)(R^B)$- wherein $R^A$ and $R^B$, which may be the same or different, each represent a hydrogen atom, a $C_{1-6}$ alkyl group or a phenyl group,

in the above Formula (II),

Ar represents an aryl group which may be substituted with any substituent,

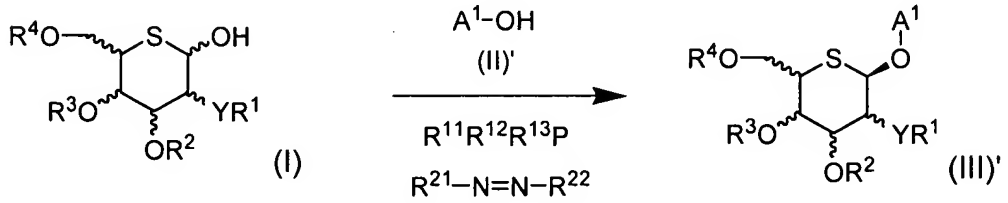
in $PR^{11}R^{12}R^{13}$,

$R^{11}$ to $R^{13}$, which may be the same or different, each represent a phenyl group which may be substituted with a $C_{1-6}$ alkyl group, a pyridyl group or a $C_{1-6}$ alkyl group, and

in $R^{21}$-N=N-$R^{22}$,

$R^{21}$ and $R^{22}$, which may be the same or different, each represent a $C_{2-5}$ alkoxycarbonyl group, an N,N-di-$C_{1-4}$ alkylaminocarbonyl group or a piperidinocarbonyl group.

**2. (original):** The method according to claim 1, wherein



Formula (II) is represented by the above Formula (II)' and Formula (III) is represented by the above Formula (III)' wherein Y, $R^1$, $R^2$, $R^3$ and $R^4$ are as defined in claim 1,

wherein in the above Formulae (II)' and (III)',

$A^1$ represents an aryl group which may be substituted with the same or different 1 to 4 substituents selected from the group consisting of:

a halogen atom;

a hydroxyl group;

$-^+NH_3$;

$-^+N(CH_3)_3$;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$$-(CH_2)m-Q$$

wherein m represents an integer of 0 to 4, and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a $C_{1-6}$ alkoxy group which may be substituted with 1 to 4 halogen atoms, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a $C_{2-10}$ acyloxy group, a $C_{2-10}$ acyl group, a $C_{2-6}$ alkoxycarbonyl group, a $C_{1-6}$ alkylthio group, a $C_{1-6}$ alkylsulfinyl group, a $C_{1-6}$ alkylsulfonyl group, -NHC(=O)H, a $C_{2-10}$ acylamino group, a $C_{1-6}$ alkylsulfonylamino group, a $C_{1-6}$ alkylamino group, an N,N-di($C_{1-6}$ alkyl)amino group, a carbamoyl group, an N-($C_{1-6}$ alkyl)aminocarbonyl group, or an N,N-di($C_{1-6}$ alkyl)aminocarbonyl group;

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, a $C_{7-10}$ aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group; and

a group represented by the formula:

$$-X-A^2$$

wherein X represents $-(CH_2)n-$, $-CO(CH_2)n-$, $-CH(OH)(CH_2)n-$, $-O-(CH_2)n-$, $-CONH(CH_2)n-$, $-NHCO(CH_2)n-$ wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-, and $A^2$ represents an aryl group, a heteroaryl group or a 4- to 6-membered heterocycloalkyl group, each of which may be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

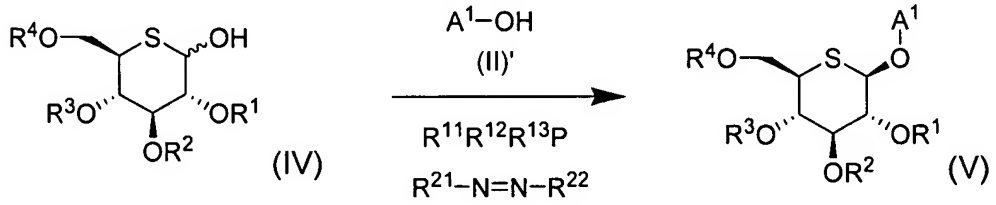
$$-(CH_2)m'-Q'$$

wherein m' represents an integer of 0 to 4, and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a $C_{1-6}$ alkoxy group which may be substituted with 1 to 4 halogen atoms, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a $C_{2-10}$ acyloxy group, a $C_{2-10}$ acyl group, a $C_{2-6}$ alkoxycarbonyl group, a $C_{1-6}$ alkylthio group, a $C_{1-6}$ alkylsulfinyl

group, a $C_{1-6}$ alkylsulfonyl group, -NHC(=O)H, a $C_{2-10}$ acylamino group, a $C_{1-6}$ alkylsulfonylamino group, a $C_{1-6}$ alkylamino group, an N,N-di($C_{1-6}$ alkyl)amino group, a carbamoyl group, an N-($C_{1-6}$ alkyl)aminocarbonyl group, or an N,N-di($C_{1-6}$ alkyl)aminocarbonyl group; and

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, a $C_{7-10}$ aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group.

**3. (original):** The method according to claim 2, wherein




Formula (I) is represented by the above Formula (IV) wherein $R^1$, $R^2$, $R^3$ and $R^4$ are as defined in claim 1 and Formula (III)' is represented by the above Formula (V) wherein $R^1$, $R^2$, $R^3$ and $R^4$ are as defined in claim 1, and $A^1$ is as defined in claim 2.

**4. (original):** The method according to claim 3, wherein $A^1$ represents a phenyl group substituted with -X-$A^2$ wherein X and $A^2$ are as defined in claim 2, in which the phenyl group may be further substituted with the same or different 1 to 3 substituents selected from:

a halogen atom;

a hydroxyl group;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

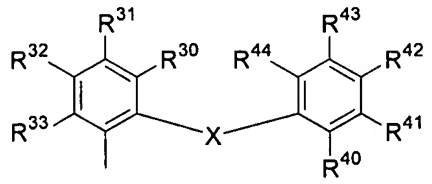
a group represented by the formula:

$$-(CH_2)m-Q$$

wherein m and Q are as defined in claim 2; and

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group.

**5. (original):** The method according to claim 3, wherein $A^1$ is represented by the following formula:




(VI)

wherein

X represents -$(CH_2)$n-, -$CO(CH_2)$n-, -$CH(OH)(CH_2)$n-, -O-$(CH_2)$n-, -$CONH(CH_2)$n-, -$NHCO(CH_2)$n- wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-,

$R^{30}$, $R^{31}$, $R^{32}$ and $R^{33}$, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

$-^{+}NH_3$;

$-^{+}N(CH_3)_3$;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$$-(CH_2)m-Q$$

wherein m represents an integer of 0 to 4, and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a $C_{1-6}$ alkoxy group which may be substituted with 1 to 4 halogen atoms, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a $C_{2-10}$ acyloxy group, a $C_{2-10}$ acyl group, a $C_{2-6}$ alkoxycarbonyl group, a $C_{1-6}$ alkylthio group, a $C_{1-6}$ alkylsulfinyl group, a $C_{1-6}$ alkylsulfonyl group, -NHC(=O)H, a $C_{2-10}$ acylamino group, a $C_{1-6}$

alkylsulfonylamino group, a $C_{1-6}$ alkylamino group, an N,N-di($C_{1-6}$ alkyl)amino group, a carbamoyl group, an N-($C_{1-6}$ alkyl)aminocarbonyl group, or an N,N-di($C_{1-6}$ alkyl)aminocarbonyl group; or

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, a $C_{7-10}$ aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group, and

$R^{40}$, $R^{41}$, $R^{42}$, $R^{43}$ and $R^{44}$, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

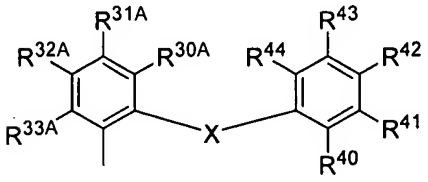
$$-(CH_2)m'-Q'$$

wherein m' represents an integer of 0 to 4, and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a $C_{1-6}$ alkoxy group which may be substituted with 1 to 4 halogen atoms, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a $C_{2-10}$ acyloxy group, a $C_{2-10}$ acyl group, a $C_{2-6}$ alkoxycarbonyl group, a $C_{1-6}$ alkylthio group, a $C_{1-6}$ alkylsulfinyl group, a $C_{1-6}$ alkylsulfonyl group, -NHC(=O)H, a $C_{2-10}$ acylamino group, a $C_{1-6}$

alkylsulfonylamino group, a $C_{1-6}$ alkylamino group, an N,N-di($C_{1-6}$ alkyl)amino group, a carbamoyl group, an N-($C_{1-6}$ alkyl)aminocarbonyl group, or an N,N-di($C_{1-6}$ alkyl)aminocarbonyl group; or

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, a $C_{7-10}$ aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group.

**6. (original):** The method according to claim 5, wherein $A^1$ is represented by the following formula:



(VI)

wherein

X is as defined in claim 5,

$R^{30A}$, $R^{31A}$, $R^{32A}$ and $R^{33A}$, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

a $C_{1-6}$ alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

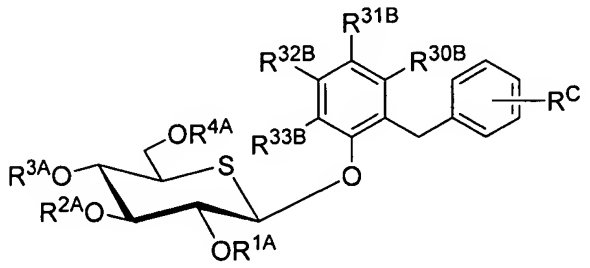
$$-(CH_2)m^A\text{-}Q^A$$

wherein $m^A$ represents an integer of 0 to 4, and $Q^A$ represents a formyl group, a carboxyl group, a $C_{1-6}$ alkoxy group which may be substituted with 1 to 4 halogen atoms, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a $C_{2-10}$ acyloxy group, a $C_{2-10}$ acyl group, a $C_{2-6}$ alkoxycarbonyl group, a $C_{1-6}$ alkylsulfonyl group, or a $C_{2-10}$ acylamino group; or

a $C_{3-7}$ cycloalkyl group, a $C_{3-7}$ cycloalkyloxy group, an aryl group, a $C_{7-10}$ aralkyl group, an aryloxy group, a $C_{7-10}$ aralkyloxy group, or a $C_{7-10}$ aralkylamino group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a $C_{1-6}$ alkyl group and a $C_{1-6}$ alkoxy group, and

$R^{40}$, $R^{41}$, $R^{42}$, $R^{43}$ and $R^{44}$ are as defined in claim 5.

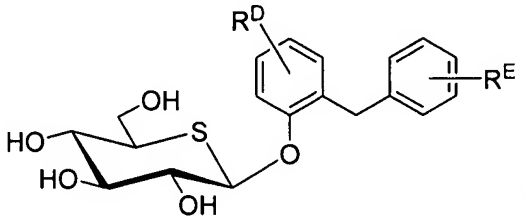
**7. (original):** The method according to claim 3, wherein the compound of Formula (V) is a compound represented by the following formula:




(VII)

wherein $R^{30B}$, $R^{31B}$, $R^{32B}$ and $R^{33B}$, which may be the same or different, each represent a hydrogen atom, a halogen atom, a $C_{1-6}$ alkyl group, a $C_{1-6}$ alkoxy group, a $C_{1-6}$ alkoxy-$C_{1-6}$ alkoxy group, a carboxyl group, a $C_{2-6}$ alkoxycarbonyl group, a hydroxyl group or a hydroxy-$C_{1-4}$ alkyl group, $R^C$ represents a hydrogen atom, a halogen atom, a $C_{1-6}$ alkyl group, a $C_{1-6}$ alkoxy group, a hydroxy-$C_{1-4}$ alkyl group, a halogen-substituted $C_{1-6}$ alkyl group or a $C_{1-6}$ alkylthio group, $R^{4A}$ represents a hydrogen atom, a $C_{2-6}$ alkoxycarbonyl group or a $C_{2-6}$ alkanoyl group, and $R^{1A}$ to $R^{3A}$, which may be the same or different, each represent a hydrogen atom, a $C_{2-8}$ alkanoyl group or a benzoyl group.

**8. (original):** The method according to claim 3, wherein the compound of Formula (V) is a compound represented by the following formula:




(VIII)

wherein $R^D$ represents a hydrogen atom, a halogen atom, a $C_{1-6}$ alkyl group or a hydroxy-$C_{1-4}$ alkyl group, and $R^E$ represents a hydrogen atom, a halogen atom, a $C_{1-6}$ alkyl group, a $C_{1-6}$ alkoxy group or a hydroxy-$C_{1-4}$ alkyl group.

**9. (original):** The method according to claim 1, wherein Ar is an aryl group substituted with 1 to 4 electron-withdrawing groups.

**10. (currently amended):** The method according to ~~any one of~~ claims ~~2 to 4~~, wherein $A^1$ is an aryl group substituted with 1 to 4 electron-withdrawing groups.

**11. (original):** The method according to claim 5, wherein at least one of $R^{30}$, $R^{31}$, $R^{32}$ and $R^{33}$ is an electron-withdrawing group.

**12. (original):** The method according to claim 6, wherein at least one of $R^{30A}$, $R^{31A}$, $R^{32A}$ and $R^{33A}$ is an electron-withdrawing group.

**13. (original):** The method according to claim 7, wherein at least one of $R^{30B}$, $R^{31B}$, $R^{32B}$ and $R^{33B}$ is an electron-withdrawing group.

**14. (original):** The method according to any one of claims 9 to 13, wherein the electron-withdrawing group is selected from a formyl group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, $-^{+}NH_3$, $-^{+}N(CH_3)_3$, $-CF_3$, $-CCl_3$, $-COCH_3$, $-CO_2CH_3$, $-CO_2C_2H_5$, -COPh, $-SO_2CH_3$ and a halogen atom.